ABSTRACT

Derivatives of Pyrimidine substituted benzimidazole were synthesized from chalcone derivatives of benzimidazole by condensation with guanidine hydrochloride. The synthesized compounds were confirmed by IR, ^{1}H NMR and Mass spectral data. Synthesized derivatives were investigated for their anti-inflammatory, analgesic and antibacterial activities. Some of the synthesized compounds where found to possess significant anti-inflammatory, analgesic and antibacterial activities. The docking studies were carried out in 2OYE, 1CX2 and 1CQE receptors. It was found that **SE-5B$_1$** has 1CX2 receptor binding more than that of other receptors which is a clear indication that the molecule will have good anti-inflammatory activity with fewer side effects which was proved by anti inflammatory activity. Anti-inflammatory activity was carried out using carrageenan induced paw oedema method. The derivatives **SE-5A$_1$, SE-5A$_2$, SE-5B$_1$** and **SE-5B$_2$** showed moderate anti-inflammatory activity. Analgesic activity was carried out using hot plate method. The derivatives **SE-5A$_4$** and **SE-5A$_5$** showed good analgesic activity. Antibacterial was carried out using cup plate method at 75, 100, 125 µg/mL. Among all the synthesized compounds **SE-5A$_1$, SE-5A$_3$, SE-5B$_3$ and SE-5B$_5$** showed good antibacterial activity. It was observed that the synthesized compounds possessing electron withdrawing (-NO_2) in phenyl ring exhibited good pharmacological activities when compared to that of other synthesized compounds.

Key words: Benzimidazole; Pyrimidine; Anti-inflammatory; Analgesic; Antibacterial, Docking